AMENDMENT TO THE CLAIMS

Claims 1-28 (Cancelled)

29.(New) A marine geophysical acquisition system comprising the following features:

one or more seismic signal sources (2) for being arranged in the sea or at the seafloor and for emitting seismic signals;

a plurality of seismic sensors (1) arranged on a receiver cable (5) for being extended in the sea, said seismic sensors (1) for sensing propagated seismic signals emitted from said signal source (2);

wherein one or more electromagnetic (EM) signal sources (3) arranged in the sea, or on the sea floor, said signal source (3) for emitting EM-signals;

a plurality of electromagnetic sensors (4) arranged along and on, or otherwise associated with, said receiver cable (5), in which said electromagnetic sensors (4) have generally fixed distance relations with said seismic sensors (1) along said receiver cable (5), said EM-sensors (4) for sensing EM-signals propagated from said EM-signal sources (3).

30.(New) The marine geophysical acquisition system of claim 29, in which said EM signal source (3) is provided with electrical power through an insulated electric cable (26) connected to an electric signal generator (24) aboard a marine vessel (30).

31.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) having a lead-in, umbilical or riser cable (23) from said vessel (30).

32.(New) The marine geophysical acquisition system of claim 31, said receiver cable (5) being arranged with a negative buoyancy for residing on the seafloor at least during data acquisition using said EM sensors (4), for avoiding attenuation in sea-water of EM-waves propagating upwards from underneath geological formations and reduce noise from physical movements, relative water flow close to the sensor and from waves propagating downwards from the air or from the sea surface trough the water masses.

33.(New) The marine geophysical acquisition system of claim 29, of which said EM signal source (3) is positioned in the same plane, or close to the same plane, as the longitudinal axis of said receiver cable (5) with said plurality of electromagnetic sensors (4), said receiver cable (5) being generally linear in a vertical projection on the horizontal plane.

34.(New) The marine geophysical acquisition system of claim 33, in which said EM signal source (3) is bipolar, and having a bipolar axis (3a) in the same plane as said receiver cable (5).

35.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) provided with electronic units (14_1, 14_2, ..., 14_{n-1}, 14_n, 14_{n+1}, ..., 14_q, ...), each electronic unit (14_n) provided with a voltage amplifier (19_n) having a first voltage input line (19a) and a second voltage input line (19b), said input lines (19a, 19b) for being connected to separate electrodes (4).

36.(New) The marine geophysical acquisition system of claim 35, said first voltage input line (19a) connected to an electrode (4_n), said voltage amplifier output connected to an analog-to-digital signal converter (21_n), said voltage amplifier (19_n) for amplifying an alternating voltage difference between at least two electrodes (4n, 4x).

37.(New) The marine geophysical acquisition system of claim 35, said receiver cable provided with a common ground line (7), and one or more of said electrodes (4_n) arranged for being connectable through a first switch ($18A_n$) to said common ground line (7), for forming a reference ground voltage for one or more other electrodes (4).

38.(New) The marine geophysical acquisition system of claim 36, said electrode (4_n) connectable via a second switch ($18C_n$) to said second voltage input line ($19B_n$) and further connected to a third switch ($18B_n$) to a local ground line (8_n) to a similarly arranged switch ($18B_{n+1}$) on a nearest-neighbour electronic unit (14_{n+1}), said switch ($18B_{n+1}$) further

connected to a second voltage input line ($19B_{n+1}$) of a voltage amplifier (19_{n+1}) of said nearest-neighbour electronic unit (14_{n+1}).

39.(New) The marine geophysical acquisition system of claim 38, adapted for measuring one or more varying voltage signals in the environment by using two consecutive electrodes (4_n, 4_{n+1}), by leaving switch ($18A_n$) open, closing switch ($18C_n$), closing switch ($18B_n$) to connect with local ground line (8_n) to switch ($18B_{n+1}$) connected to said second input line (19b) on said voltage amplifier (19_n) on said consecutive electronic unit (14_{n+1}).

40.(New) The marine geophysical acquisition system of claim 38, digitizing the amplified varying voltage signal ($V21a_n$) to a digitized voltage signal ($V21d_n$) using said analog-to-digital signal converter (21_n) and transmitting said digitized voltage signal ($V21d_n$) along a main signal line (6) to a data storage means (36) preferably arranged on said vessel (30), for storage and analysis of said digitized voltage signal ($V21d_n$).

41.(New) The marine geophysical acquisition system of claim 39, adapted for measuring one or more varying voltage signals in the environment by using an electrode (4_q) connected to an electronic unit (14_q) as a common reference electrode, by closing switch ($18A_q$) connecting electrode (4_q) to said common ground line (7), and closing switch ($18B_n$) connecting said second input line ($19b_n$) on amplifier (19_n) to said common ground

line (7), for using (14_q) as a reference electrode for measuring a varying signal ($V21a_n$) on electrode (4_n).

42.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) having a flexible, electrically insulating and water-proof outer skin (25).

43.(New) The marine geophysical acquisition system of claim 42, said receiver cable skin (25) being generally continuous over generally the entire length of receiver cable (5), and having a cavity or series of preferably fluid-containing cavities (9) containing said EM electronic units (14), said electrodes (4) arranged with one surface extending on the outside of said skin (25) to be in direct electrical contact with the sea or the seafloor.

44.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) made from two or more receiver cable sections (15).

45.(New) The marine geophysical acquisition system of claim 44, each of said receiver cable sections (15) comprising both EM sensor electrodes (4) and seismic sensors (1).

46.(New) The marine geophysical acquisition system of claim 44, some of said receiver cable sections (15) being EM receiver cable sections (15_{EM}) generally comprising EM sensor electrodes (4), each said EM receiver cable section (15_{EM}) arranged in line with,

between seismic receiver sections (15_s) generally comprising generally seismic sensors (1).

47.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) comprising separate instrument unit cans (10) comprising seismic sensors (1) and EM sensor electrodes (4), said cans connected by signal and voltage conducting cable sections (15b).

48.(New) The marine geophysical acquisition system of claim 32, said receiver cable (5) arranged as a fixed array of sensors (1, 4) in a line or in a grid on the seafloor.

49.(New) The marine geophysical acquisition system of claim 29, said seismic source (2) being a seismic P- or S- wave source (2a) arranged on the seafloor or in the seabeds, preferably a seismic vibrator (2a) of horizontal or vertical polarization.

50.(New) The marine geophysical acquisition system of claim 29, said seismic source (2) being a pressure wave source (2b), preferably an airgun.

51.(New) The marine geophysical acquisition system of claim 29, said electromagnetic source (3) comprising two electric transmitter electrodes (3a, 3b) arranged with a separation in the sea water, said electrodes (3a, 3b) provided with a desired electric

voltage and current signal through a pair of insulated electric cables (26) from an electric generator (24), preferably aboard said vessel (30).

52.(New)The marine geophysical acquisition system of claim 29, said receiver cable (5) comprising seismic electronic units (16_n) comprising one or more seismic electronic amplifiers (17_n) for amplifying seismic sensor (1) output signals ($V17_n$), and A/D converters (22_{sn}) for digitizing the amplified voltage signal ($V22_{sn}$) from said seismic electronic amplifiers (17) to digitized seismic voltage signals ($S22_{sn}$), and transmitting said digitized voltage signal ($S22_{sn}$) along said main signal line (6) to a data storage means (36) preferably arranged on said vessel (30), for storage and analysis of said digitized seismic signals ($S22_{sn}$).

53.(New) The marine geophysical acquisition system of claim 29, said EM source (3) arranged directly on the seafloor in order to prevent sea-water signal loss in the downward propagating EM wave.

54.(New) The marine geophysical acquisition system of claim 32, said data storage unit (13) arranged with said receiver cable (5) on the seafloor, for being retrieved by a vessel (30) after a traversal of said receiver cable (5) by said electromagnetic transmitter (3) and said seismic signal source (2).

55.(New) The marine geophysical acquisition system of claim 53, said data storage unit (13) arranged remotely from said receiver cable (5), for online data retrieval during data acquisition while said electromagnetic signal source (3) and seismic signal source (2) traverses said receiver cable (5).

56.(New) The marine geophysical acquisition system of claim 29, said receiver cable (5) comprising separate instrument unit cans (10) comprising seismic sensors (1) and EM sensor electrodes (4), said cans connected by signal and voltage conducting cable sections (15b), said cable (5) arranged in a borehole or petroleum well outside of any conductive casing.

57.(New) The marine geophysical acquisition system of claim 39, digitizing the amplified varying voltage signal ($V21a_n$) to a digitized voltage signal ($V21d_n$) using said analog-to-digital signal converter (21_n) and transmitting said digitized voltage signal ($V21d_n$) along a main signal line (6) to a data storage means (36) preferably arranged on said vessel (30), for storage and analysis of said digitized voltage signal ($V21d_n$).